

at 55'93, or say sixteen feet under L.W. extreme springs, twenty-two feet under the surface of the mud.

Inside the dock altogether were 382 trees, 223 standing, the remainder flat. The largest tree was forty-six feet

long, and 4' 6" girth; it was flat. None of the trees would girth over 4' 6". The soil in which many of them stood was only 6" to 9" thick over the rock. The wood is apparently black wood. The roots presented a

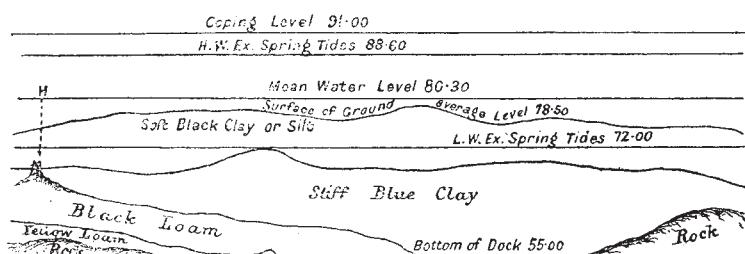


FIG. 3.—Section No. 1. Scale—Vertical 15 feet to $\frac{1}{2}$ inch, horizontal 150 feet to $\frac{1}{2}$ inch.

peculiar appearance, being nearly at right angles to the trunks.

The forest seems to have stopped at the gates, as very few trees were brought up in the dredging operations.

NOTES

PROF. HELMHOLTZ has been appointed Faraday Lecturer for 1881; the lecture will be given early in April.

WE greatly regret to announce the death of Sir Benjamin C. Brodie, Bart., F.R.S., the eminent chemist and late Professor of Chemistry in the University of Oxford. He died on Wednesday, last week, at Torquay, in the sixty-fourth year of his age. We hope to be able to give a detailed notice of Sir Benjamin's life and work in a future number.

THE death, on Sunday, is announced of Mr. Mark Firth, at Sheffield, in the sixty-second year of his age. Mr. Firth was eminent for his discriminating liberality, and will be specially known to our readers as the founder of the well-known Firth College, Sheffield, opened by Prince Leopold last year.

PROF. J. CHARLES D'ALMEIDA, whose sudden death at Paris we mentioned a fortnight since, was one of the prominent leaders in the scientific circles of the French capital. Formerly a Professor of Physics in the Lyceum of Henry IV., he had occupied for some years past the important and responsible position of Inspector-General of Public Instruction. A strong Liberal in matters of education, he exercised a marked influence in the late reorganisation of the French educational system. It was almost entirely owing to his efforts that the Société Française de Physique owes its creation, and since its origin he has occupied the post of secretary. As an investigator D'Almeida is best known by his valuable researches on the phenomena of electrolysis, on galvanic batteries, on capillary phenomena, &c. One of the most remarkable services he has rendered was the invention of the photographic despatches by means of which, during the siege of Paris, the inhabitants of the city were enabled to avail themselves so extensively of the otherwise limited services of the "pigeon post."

A SHORT time ago we alluded to the severe loss to chemical and technical literature by the death of Prof. von Wagner, who for twenty-five years past has conducted so ably his admirable *Jahresbericht für die chemische Technologie*. The difficult question of finding a successor in the editorship of this important annual has been happily solved by the choice of Dr. Ferd. Fisher, Professor of Technology at the Polytechnic of Hanover. For a long time past Prof. Fisher has rendered valuable literary services in editing *Dingler's Polytechnisches Journal*, the most

The mixture of different kinds of stone is curious. In small patches we find trap, which gives way to moorum, and then a sort of pudding-stone mixed up with black and red stuff so hard that it cuts the divers' hands as with a knife.

important technical publication on the Continent. As an investigator he is also well known by his elaborate researches on water in its technical and physiological relations, on pyrometry, and on numerous other chemical and technical questions. Under the new auspices the *Jahresbericht* has every reason to look forward to a continuance of its successful career.

M. CHARCOT reopened last week his course of botany at Salpetrière, where he exhibited last year the curious phenomena of female patients suffering from neuro-mental affections. New instances will be produced of cures analogous to the troubles regarded in mediæval times as produced by demoniacal agency or cured by witchcraft.

IN a lecture on earthquakes delivered in Vienna on the 22nd inst., Prof. v. Hochstetter designated the Agram earthquake (affecting elliptically a region of 60 to 80 German miles diameter, and having its larger axis directed south-south-west to north-north-east) as a tectonic or dislocation-earthquake—a name which originated with the Austrian geologist Prof. Hörnes. Prof. Süss expressed a similar opinion in a lecture on November 24, "On Earthquakes in the Alps."

ON Sunday evening, about six o'clock, slight shocks of earthquake were felt at two different places in Scotland—one being Callander, in Perthshire, and the other Inverary, in Argyllshire. The two districts affected are about forty miles apart, in a line due east and west. The shock was also felt at Rothesay and Stornoway. In the north of Ireland during Sunday evening and also the earlier hours of yesterday morning several decided shocks of earthquake were felt, especially in Londonderry and its vicinity. The disturbance was more particularly felt at Innishowen, and it seemed to travel across the bed of the River Foyle to the County Derry side, where the effects were felt strongly.

AT DORTMUND there was a slight shock of earthquake on November 25, and a smart one on the 27th.

MR. MUNDELLA has been speaking on education again, repeating essentially the old story, that our country must lose in the race unless, as in other countries, education in science is made an imperative part of elementary education. We have many natural and traditional advantages over other countries, but all these must in the long run succumb to scientific training.

A MAGNIFICENT lacustrine find has been made in the marshes of Corcellettes, near Consise, in Canton Vaud. It consists of a

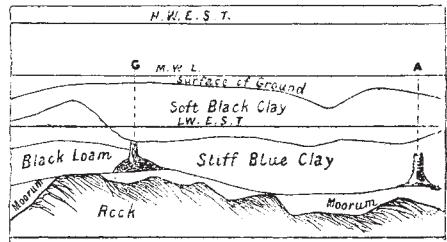


FIG. 4.—Section No. 2.

fine canoe in a perfect state of preservation, 11 metres 16 centimetres long, and slightly more than a metre broad. It was dug out and drawn from the marsh by sixty men and eight oxen, under the superintendence of the director of the Museum of Lausanne, and has been placed in the court of the Lausanne Academy, where it is destined to remain.

WE have before us the reports for last year of the two clubs which have for their object the furtherance of the special study of British plants and their distribution over the surface of the islands. The Botanical Exchange Club has been in existence about twenty-five years, and was a continuation of the London Botanical Society. The Secretary sends out each spring a list of the plants that are wanted, and the members, who are about thirty in number, at Christmas send in their parcels and lists of desiderata. All doubtful specimens are submitted to competent referees, and after the distribution is made a report is published on critical forms and extensions of distribution. The most interesting find noticed this year is the discovery of *Herniaria hirsuta*, a plant spread widely through the southern half of Europe, by Mr. Fred. Townsend at Christchurch, in Hampshire. Dr. Boswell identifies the prickly comfrey, which has been so much talked about lately as a forage plant, with the *Sympyton uplandicum* of Nyman. Probably it is really a hybrid between *S. officinale* and *S. aspernum*, as was suggested lately when it was figured by Sir Joseph Hooker in the *Botanical Magazine*. Some curious observations have been made lately tending to show that our wild docks hybridise naturally not unfrequently, like verbascums, geums, primulas, thistles, and epilobias. There is a curious form of *Ophioglossum* (*O. vulgatum*, var. *ambiguum* of Cosson and Germain), which till now has been known in Britain only in the Orkney and Scilly Islands. This year Mr. Chas. Bailey has found it on the Welsh coast between Harlech and Barmouth. The Botanical Record Club has for its object the filling up of the blanks left by Mr. Watson when he traced out in detail the home-distribution of British plants in his "Cybele Britannica." In the report for this year detailed lists are given for Cardiganshire and Peeblesshire, and the only counties for which lists of flowering plants now remain to be drawn up are Flintshire, Wigtonshire, and West Ross. Fourteen pages of the present report are occupied by fresh records for counties already worked up, and the Club is now turning its attention to the distribution of the lower cryptogamia, especially mosses. The registration of flowering plants is in the hands of Dr. F. A. Lees of Wetherby, and of mosses in that of Mr. H. Boswell of Oxford; and the Secretary of both the Clubs is Mr. Chas. Bailey, F.L.S., of Manchester.

MR. BRIAN HOUGHTON HODGSON, F.R.S., has just presented to the Anthropological Institute a valuable portfolio of drawings illustrative of the Eastern Himalayas and Tibet. The drawings have been made by the same Nepalese draughtsman as delineated the zoological drawings which have been presented to the Zoological Society, and this ethnological series comprises and contains in all 521 subjects, including duplicates. A series of crania have been drawn by aid of the camera, Mr. Hodgson remarking "native patience, hand and eye being peculiarly fitted to work that instrument."

ETIENNE MULSANT, one of the most prominent of French entomologists, and librarian to the city of Lyons, died on November 4 at the great age of eighty-four. His earliest publication was the "Lettres à Julie sur l'Entomologie (en prose et en vers)," published in 1830, but for the most part consisting of real love-letters to the lady he afterwards married, and written before he was out of his teens. His writings are most voluminous; but he was best known as the author of a work extending over nearly forty years, on the *Coleoptera* of France, and published (chiefly) in the *Annales of the Linnean Society* of

Lyons. He was also the author of a magnificently illustrated work on Humming Birds, in connection with which he visited London about five years ago.

WE learn that Messrs. Williams and Norgate are about to issue an important work on the Fishes of Great Britain and Ireland by Dr. Francis Day, late Inspector-General of the Fisheries of India. This work deals with their economic uses, modes of capture, diseases, breeding, life-history, &c., with an introduction on the structure of fishes generally, their functions and geographical distribution. The first part appears this month, and is illustrated by twenty-seven plates. The whole will form a work of 700 pages royal octavo, with over 200 plates.

THE exploration of the remains of prehistoric man is being actively carried out in Russia. We have already briefly noticed a contribution to this subject by M. Mereshkovsky, published in the *Izvestia* of the Russian Geographical Society (vol. xvi. No. 2), being a report upon the exploration of caverns and rock-shelters in the Crimea, in the neighbourhood of the Tchatyrdagh Mountain. A great cavern, 145 feet wide and 58 feet deep, was explored close by the Suren town, and M. Mereshkovsky found there the remains of a prehistoric workshop for the manufacture of stone implements, the whole belonging to two distinct periods. The paper by M. Mereshkovsky, published in the *Izvestia*, is accompanied with four tables of drawings of stone implements.

WE notice the following interesting communications which were made at the last meeting of the St. Petersburg Geological Society:—On the motion of downs near Sestroretsk, by M. Sokoloff. The velocity of these downs is about one foot per month.—On the excavations made by water in rivers and springs of Northern Estonia, especially by the waterfalls near Reval, Yagowal, and Fal; and on the Devonian clays discovered by Prof. Inostrantseff in the cuttings of the new Ladoga canal. The upper parts of the beds of these clays are bent by the action of the ice of the ice period, as has been observed at many places in Great Britain; the peats which cover the glacial formations are full of remains of prehistoric man.

WE can state that the Observatory of Algiers will not remain longer without an astronomical observer. M. Tripier, who has been appointed director, as has been announced in the French papers, will leave in time for installation at the meeting of the French Association for the Progress of Science in April, 1881.

THE purchaser of the French Siemens patent is preparing to send a tender for establishing an electric railway from the Exhibition to the central parts of Paris.

ABNORMAL VARIATIONS OF BAROMETRIC PRESSURE IN THE TROPICS, AND THEIR RELATION TO SUN-SPOTS, RAINFALL, AND FAMINES¹

II.

Comparison of the Abnormal Barometric Variations with the Sun-Spots

A GLANCE at the barometric and sun-spot curves is sufficient to show that the irregular and frequent fluctuations of pressure are relatively much larger than those of the sun-spots. In order therefore to compare the general course of the barometric curves with that of the sun-spot curve the numbers of Table I. have been further smoothed by taking the means of every nine consecutive quarterly values of the nine-monthly means. The results of this operation are given in the following table, and graphically represented by the dotted curves which are drawn through the continuous ones. All these dotted barometer curves closely resemble each other, except that portion of the Mauritius curve after the year 1865 which shows a tendency to assume an opposite character. They are also very similar to the sun-spot curve, but all of them lag very persistently behind the latter, as will be seen by comparing the points marked with the same capital letters:—

¹ Continued from p. 91.